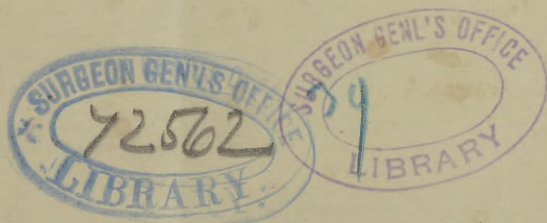


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ON THE SUCCESSFUL TREATMENT
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OF
PERIPHERAL PARALYSIS

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The Successful Treatment of Some Forms of Peripheral Paralysis.

By JOHN VAN BIBBER, M. D.

In the paper which I had the honor to present to this Society last year, I called attention to certain views concerning a new treatment for some forms of peripheral paralysis. Since that time I have had the opportunity of making further observations, which have convinced me more fully of the truth and accuracy of an opinion that was then only imperfectly substantiated by practical results.

When last year it was stated that too often the muscular element of paralysis was entirely neglected, I did not then suppose that the subject was of such vast importance as a larger experience has proved it to be. And when to-day it is stated positively, and with assurance, that the investigations into the condition of paralyzed muscles are destined to become one of the chief advances in medical science, there are many who will be surprised at the bold position that I have taken. But it should be remembered that the various lesions of the nervous system have only of late years been brought into prominence, and that the more general recognition of specialties has brought under enthusiastic observation a much larger number of cases. Thus great interest has been aroused in this heretofore unsatisfactory field of medical science; and by superior means of diagnosis, increased pathological knowledge, and by vivisections to establish physiological truths, many advances have already been made, and much progress is promised in the future.

The Dispensary for Nervous Diseases at the Washington Hospital has presented to my care a very large proportion of peri-

pheral paralyses among the patients applying for relief, and it has been a source of great gratification to observe the results that have followed the special plan of treatment adopted for such cases.

It is to this subject that I wish now to call your attention ; and I think it would be more acceptable to this Society for me to give the results of my own views and deductions concerning this morbid condition, rather than to follow the questionable fashion of the day, and present to your consideration long extracts from various authors and authorities.

In order at once to command your attention, I may say that in no department of medicine are the results of treatment so apparent and interesting as in the progress and recovery of peripheral paralyses. For in this condition you have a distinct nerve-injury and a separate group of muscles deprived of power, and in the slow return of natural functions we have an opportunity for satisfactory and intelligent observation that is rarely afforded us in medical practice.

Although the optic nerve is the only nerve-tissue we can see either in health or disease without doing violence to the body, yet in the muscles to which various nerves are distributed we have a beautiful index, a gauge to judge of their actual state, an excellent medium of information to tell of their strength, their action, and probable morbid condition. Injuries to the facial, the circumflex, and the musculo-spiral nerves fully substantiate the truth of this assertion ; for any violence to these filaments branching out from great nerve-centres, leaves in bold prominence a certain number of muscular fibres which refuse to act, which lose their animal heat, and which finally degenerate and atrophy. What is true of these nerves is of course equally applicable to others, though on account of their exposed position the three first mentioned are most frequently brought to the notice of the profession.

This fact of local paralysis refers to all nerves which somewhere in their distribution may be reached by various accidents, such as violence, cold, or toxic influence, and thus be rendered incapable of conveying that necessary impression to the muscles which determines their contraction.

When any number of muscular fibres, by any of these accidents, lose their connection with the will, and can no longer per-

form their natural functions, certain changes go on in their substance which are at once interesting and instructive. The loss of motion, although the most prominent, is not by any means the only important alteration that goes on in the muscular tissues after the nervous influence is cut off or impeded. The sudden change from the motions and contractions of health to the immobility and helplessness of paralysis, must produce many disturbances besides the loss of power in both nerve and muscle. But the immediate difference made in the circulation of a paralyzed muscle is the main factor that determines its degeneration. For, taking into consideration the anatomy of muscular fibre, we cannot fail to be impressed with the idea that motion is necessary for the due performance of its nutrition, and that any prolonged quiescence, or any stretched and forced condition of this tissue, would be followed by loss of animal heat and consequent atrophy. The diameter of the blood-vessels being varied with every contraction of the muscles, it is but reasonable to suppose that the element of position is much more important than has heretofore been considered.

Therefore it has been my endeavor during the last year to observe closely all cases of paralysis that have come under my care, with the view of ascertaining, if possible, the exact value of artificial motion in the treatment of paralyzed muscles. In a former paper on this subject, attention was called to the physiological arguments in favor of this theory; and after referring to the anatomy of muscular fibre, I advocated the plan of elastic relaxation, in the following words:—"In some forms of paralysis, when a muscle or group of muscles is forced by its antagonists into an abnormal and comparatively fixed position, I do not consider that treatment wise or efficient which only endeavors to cure the nervous lesion, or at best totally neglects the unphysiological condition of those paralyzed muscles. For in such a case of paralysis, we have not only the muscles incapable of receiving the influence of the will, but not being capable of motion or contraction, they are injured—first, by the fibres themselves being intensely stretched; second, by the circulation being undoubtedly interfered with; third, by the commencing atrophy and degeneration which must accompany any continued diminution of the circulation."

It is not without some regret that I refrain from entering more

fully into the discussion of this plan of treatment, for it is evident that there are many points in regard to it unappreciated by the profession at large. But it will probably be wiser to appeal to results rather than to theories, and to defer any more lengthy discussion until a larger success has proved the efficacy and importance of the measures that will be here recommended.

Since in peripheral paralysis the patient is not affected by any organic trouble, and possesses every member or part in the enjoyment of life and health, save one, the better treatment of such a morbid condition is certainly an object to labor for and attain. Whether it has been in my power to improve the means at our command for this purpose, the cases which will now be related can best show, for they are among the first, as well as the most prominent results that have fallen under my observation.

A clerk, 24 years of age, came under my care in August, 1874, for the treatment of a paralysis of the extensor muscles of the forearm. This condition had come on suddenly after sleeping in a tent at the sea-shore, about two weeks before he consulted me. There was total paralysis of the whole extensor group, including the supinator longus, and the temperature of that surface was appreciably diminished. His hand presented the characteristic position known as "wrist drop," and under ordinary treatment he would have suffered the inconvenience and disadvantage of having his hand in that stretched position for some length of time. But by the aid of an elastic extensor muscle, made such as I first described in *N. Y. Medical Journal*, May, 1874, this complication was entirely overcome, the whole group was retained in a more natural position, and its nutrition stimulated by motions as nearly normal as artificial means could produce. Vigorous massage was recommended, and the application of electricity was not neglected. The case went on to rapid recovery, and by the end of September, or six weeks after the commencement of treatment, he was able to write, and to command his extensor muscles to their various uses.

I place in juxtaposition to this case a patient, Heinrich Speikelman, laborer, age 30, who was treated at the Washington Dispensary for the same condition, and in whose treatment I did not avail myself of the elastic relaxation. The result showed the great in-

fluence of the elastic muscle in promoting recovery ; for although he was given the advantage of advice about placing his hand in the best positions, and of efficient treatment by massage and electricity, his paralysis was of much longer duration than the case referred to above. Two or three months is the average duration of a case of this kind, and the good results observed in the case of the first patient were entirely due to the new treatment I was enabled to pursue.

The next form of peripheral paralysis to which I shall call your attention, is one that could not be brought under the advantage of elastic relaxation, and was therefore treated by positions which would give the paralyzed muscles the best motions and the greatest amount of relaxation.

Henry Berger, age 30, applied to the Washington Dispensary, March 1st, 1875. Reports that four and a half months ago, fell from aloft on shipboard, striking his right shoulder with great violence. He suffered intense pain, and noticed immediately an entire loss of power in the muscles of the shoulder joint. He says he was treated for a dislocation. Now, four and a half months after this accident he has marked atrophy of the deltoid, the supra and infra spinati muscles, and the pectoralis major, the latter probably from disuse. The seat of injury in this case was clearly in the upper trunk of the brachial plexus, before it divides into its three cords, involving the ext. ant. thoracic, the supra-scapular and circumflex nerves. The paralysis was complete, and as it was impossible to devise any means of mechanically relaxing the fibres of the atrophied muscles, he was advised to hold his hand behind his head during the day at various intervals, and to sleep with his arm in that position at night. I do not think that persistent massage or electricity, or subcutaneous injections of strychnia, would have been of much avail, had not the element of position received a large share of consideration. In three months this patient had improved so much that he was able to go to sea, and upon his return to the dispensary his paralysis had entirely recovered.

I will now call your attention to another example of extensor paralysis, differing from the others in origin, intensity and duration. A mechanic, age 19, came under my care for the relief of a paralysis which followed a fracture of the bones of the forearm. Upon

inquiry, I found that the splint had been worn for thirteen weeks, and that it had pressed painfully upon the arm about the region of the musculo-spiral nerve. To this fact I ascribed the paralysis and total atrophy of the extensor group, which had commenced three years before, and now rendered his hand almost entirely useless. It would be impossible to give a correct idea of the atrophy in this case without exposing myself to the charge of exaggeration. On the surface of the radius, which was peculiarly curved from the fracture, there was not the slightest appearance of muscular tissue, the skin being tightly drawn over the bone, and apparently adherent to it. There was not the least reaction to either current of electricity, and altogether the case presented a very unpromising appearance. However, the elastic extensor muscle was applied, and the patient was instructed about the manipulations to be persistently employed. Both faradic and constant currents were used in his treatment. He has now been under my observation for six months, and I have been surprised at the rapid progress of his recovery. Even the extensor com. dig. can perform its functions, and the extensors of the wrist and the supinator muscles act well. Quite a mass of muscular tissue has been developed where before the arm was entirely atrophied. It is interesting and instructive to note that the muscles of the thumb, which could not be brought under the influence of the artificial muscle by the present apparatus, have improved to a very slight extent, although the circulation of that part has been much increased by the treatment. This young man has now a very useful hand, and I look upon his case as my best argument in favor of the plan of treatment that has been of such signal benefit to him.

In the paper submitted to the Society last year I referred to a modification of Dr. Detmold's apparatus for facial paralysis. Since that time I have had occasion to notice its advantages particularly in the case of a girl, 9 years of age, who was placed under my care for facial paralysis. This condition had come on suddenly three weeks before she consulted me, and at that time the paralysis was complete, including even the occipito-frontalis muscle. The rubber band and hook were applied June 13, and she also received the usual treatment for such cases. By July 15th all the muscles were much improved, except the lower fibres of the orbicularis.

She continued to wear the apparatus until July 25th, when it was found that the muscles had resumed their normal condition, and the appearance of her countenance was again natural and expressive.

I have three other cases of facial paralysis now under my observation, and I am confident that their treatment will be much aided by the use of this apparatus. One patient has suffered from this condition for seven years ; and though there is no atrophy, I shall consider its successful treatment almost as remarkable as the case of extensor paralysis related in this paper.

Paralysis of the levator palpebræ superioris offers an excellent opportunity of testing the utility of an elastic muscle, and I refer with some satisfaction to the case, reported last year, which, as far as I know, was the first application of this curative method. The patient was relieved of a very persistent ptosis which had proved beyond the reach of other remedies, and the muscle recovered rapidly under the use of this mechanical means.

I have thus brought to your notice those forms of peripheral paralysis which most frequently occur, and have proposed a treatment for them that can claim the advantage of a good theory and the sanction of a successful practice.

Allow me to hope that these few remarks, illustrated by such highly instructive cases, may increase your interest in paralyzed conditions, and impress you with the truth and accuracy of the important facts which I have had the honor to submit to your consideration.

